recorded by Hurst lasting about six months, and relapses have occurred in men who have been more than eight months in England, while the infectivity of the blood of a patient has been proved as late as the seventy-ninth day from the initial attack.

With the certainty of the transmission of trench fever by lice the problem of how to check lousiness in the Army becomes urgent. What was previously a question of the comfort of our troops now becomes a matter of curtailing a heavy wastage of man-power from a preventable cause. It is to be hoped, therefore, that adequate steps to deal with body vermin will be instituted.

ADDENDUM.

Three varieties of lice attack man; two of these, *Phthirus pubis* and *Pediculus humanus* (*capitis*), are associated with hair, and the third, *Pediculus corporis*, with clothing, the body hairs serving as an occasional and final stronghold for the species. By close clipping of all hair at regular intervals the two first-named species may be finally disposed of, but the more difficult problem of dealing with clothing and bedding infected with *Pediculus corporis* remains to be dealt with.

Heat is still by far the most effectual and economical method of ridding infected fabrics of lice. An exposure for twenty minutes to 55° C. (131° F.) is sufficient under practical conditions, provided bundling is not resorted to. Three methods of utilising heat are applicable:—

Dry heat is the easiest, simplest, and most economical.

Steam requires a more elaborate and expensive equipment with a higher working cost; it is impracticable to work with it at temperatures below 65°–70° C. In the case of bundled articles the temperature for both methods should exceed 100° C.

Hot water is applicable to undergarments only, and does not require any chemical addition provided its quantity and temperature are adequate to the bulk of the garments dipped.

Vapour.—Sulphur dioxide (SO_2), as supplied by the Clayton gas apparatus, is expensive, both as regards plant and working cost, slow in action, and needs skilled management to maintain the necessary concentration, while even in experienced hands it may allow of the survival of a small percentage of nits.

Hydrocyanic acid gas is dangerous to generate, and its use, except with skilled management, is to be deprecated; its effect on lice and nits appears to be slow, but has not been adequately determined.

The vapours of volatile fluids or substances, such as benzene, xylol, petrol, etc., may be employed if air-tight containers are available; that of naphthalene is also applicable for use by this method.

Fluids.—Light oils, such as kerosene, give fairly trustworthy results if the period of immersion is long enough, and if their efficacy against nits is aided by the addition of a small percentage of some essential oil, such as oil of sassafras. More volatile fluids are effective against active lice, but may fail against nits if the period of immersion is short.

The most trustworthy and generally serviceable fluids to use for the destruction of nits in clothing would seem to be emulsions in water of soap and crude carbolic acid, cresol, tar or wood oils, which readily destroy both active lice and their nits. The strength of the solution and period of exposure are interrelated factors—five minutes' immersion in 2 per cent. lysol being adequate, provided the temperature of the solution is above 5° C.

The impregnation of undergarments with such solutions offers a hopeful chance of aiding any general scheme by coping with the difficulty of dealing with the front line and special posts, which form the main sources of the infection of clean troops. Up to the present, however, the experiments in the field, which are necessary before a final decision on the value of this process can be arrived at, have not been carried out by the authorities.

Finally, there is the personal use of insecticidal preparations as aids to the primitive method of getting rid of these pests—now referred to as "chat"-hunting. To be of service the preparation should be of quick action and easy of application to clothing, and its issue should be as general and comprehensive as that of food. Preparations in the form of pastes are more economical and convenient than powders; fluids are out of the question. Crude "unwhizzed" naphthalene, produced by coke-oven plants, affords the most effective base, and may be conveniently mixed into paste form by the addition of soft soap or some grease, such as vaseline, in the proportion of 10 to 20 per cent. It is suitable only for clothing, and should not be employed on the skin. When it is necessary to use an anti-lice preparation on a hair-clad surface the use of vaseline, to which has been added ½ per cent. of veratrine dissolved in 5 per cent. of benzene, may be recommended.

AGRICULTURAL RECONSTRUCTION AFTER THE WAR.

IN August, 1916, Mr. Asquith appointed a Sub-Committee of the Reconstruction Committee, under the chairmanship of Lord Selborne, to inquire into the subject of agricultural development after the war, and this body, having heard a considerable amount of evidence, has now issued its Report (Cd. 9079, price 1*s*. 3*d*. net). The recommendations cover practically the whole field of agriculture, and they have the double merit of boldness and consistency.

In a historical introduction it is shown that agriculture was very prosperous during the Napoleonic wars, but suffered a period of depression afterwards. Between 1832, when the Reform Act was passed, and 1846, when the Corn Laws were repealed, the political advantages of landed property were steadily being abolished, but on the other hand some of the farmers' grievances—the old Poor Laws, the tithes, statute labour for minor roads, bad markets and means of communication —were also dealt with. Still more important, from the year 1843 Science began to lend her aid and to teach the use of artificial fertilisers, more efficient implements, and better varieties of crops. From 1837 onwards came a period of rising prosperity, culminating in the 'sixties and early 'seventies, which are generally regarded as the golden age of agriculture in this country.

In 1875, however, a period of depression set in which was acute until 1884 and again became serious in 1893. Several factors operated. Speculation had taken some of the farmers' and landowners' reserves of money; there was a series of bad seasons, culminating in the disastrous year 1879; American wheat and meat began to arrive in quantities, driven here by the financial troubles of the West and transported in the new cargo fleets then being constructed. The Government ordered inquiries, but did nothing; the political philosophy of the day was *laissez faire*—so long as food was cheap it mattered nothing if farmers went bankrupt and agriculture were ruined. Farmers and landowners struggled manfully against adversity, but many went under; the period was one of the saddest and most tragic in our rural history.

It was soon realised that grass farming was cheaper and less risky than arable farming. Between 1870 and 1900 the area of arable land in the United Kingdom fell from 24 to 19·5 million acres, and the pasture land rose from 22 to 28 million acres. At the beginning of the present century prices began to rise and farming to mend, but the farmer had learnt that he must depend on himself alone, and so he followed a system of husbandry which involved the minimum of risk and gave the maximum of return for the capital employed.

When war broke out it became apparent (as, indeed, experts had long realised) that grass farming, while beneficial to the individual, is not specially beneficial to the State. It does not produce anything like so much food per acre as arable land, and in particular it does not yield the bulk of cheap carbohydrate and protein that the nation needs. To the *laissez-faire* politician this did not matter; to a nation at war, however, it was vital.

The Committee draws from this historical review the general conclusion that the British farmer will not grow corn to any large extent unless he has some confidence that prices will be sufficient to repay expenditure. Agriculture is a business run for profit like any other business. On the political system in vogue at the end of last century the farmer gave up grain production because he had no guarantee that prices would remain at a remunerative level: they might always fall below the 34*s*. or thereabouts which it then cost to grow wheat. If the nation requires wheat to be grown here (and if it does not, "our reference is misleading, our opinions are erroneous, and this Report is waste paper"), the Committee insists that this risk of unremunerative prices must be borne by the community. Of course the farmer must in return accept certain responsibilities; he cannot guarantee delivery of so much wheat, because of the dominating influence of the seasons, but he can at any rate be compelled to raise his standard of farming and to pay decent wages. This recommendation has already been adopted and passed into law; unfortunately, the Committee states, the Act is a war-time measure only, and cannot have its full effect unless it becomes a permanent statute.

This is the central feature of the Report. Assuming it is carried out, the Committee makes further important recommendations. First, it asks for a survey of the condition of agricultural land throughout the kingdom from the point of view of its utilisation for food production, and it recommends that the Board of Agriculture shall have the power of temporarily superseding landowners or dispossessing tenants in case of bad management. More cottages should be erected, and more definite steps taken to encourage the growth of sugar-beet. The Development Commission should no longer be barred, as at present, from making advances to associations trading for profit. Alongside all this must go greater provision for agricultural education and research work. The United States spends above 4,000,000*l*. annually on agricultural education and research; France more than 1,000,000*l*.; Canada, 840,000*l*.; Prussia (in 1910), 490,000*l*.; but the United Kingdom only about 310,000*l*.

The Committee was very sympathetic to research work and agricultural education, as was only to be expected from its *personnel*. "The research work already being done," it says, "is quite admirable, but it needs stronger support yet from public funds. We reiterate that this is public expenditure which will bring in to the State a manifold return." "The evidence that has been laid before us has amply shown the ultimate value of pure scientific research and the dependence of the development of the industry upon investigation that is independent of any apparently immediate practical end." It is further clearly recognised that the old policy of underpaying the workers is futile and uneconomical. Some of the best workers are attracted to the Colonies and Dependencies.

With refreshing vigour the Committee insists on the absolute necessity for ample provision for education. The system of agricultural education in England and Wales is found to differ from the Irish or Scottish, and in the judgment of the Committee is less effective. The scheme itself is sound and provides a thoroughly good groundwork for expansion, but the execution is faulty. Too much is left to the discretion of the county councils, which can carry out or shirk their responsibilities as they please.

Rates and votes are the main excuses for inaction, and these can be very potent. The Committee urges that the responsibility for agricultural education in England and Wales should be definitely placed on the Board of Agriculture, which should take over existing staffs, colleges, and institutes from the county councils and run them out of Imperial funds and not out of the rates. If this were done much of the prejudice against agricultural education would undoubtedly disappear. Further, the Committee recommends that an improved ruralised curriculum for elementary and secondary schools should be laid down, and better prospects provided for rural teachers. Existing farm institutes and colleges should be developed so as to afford adequate opportunities for higher education to all who desired it. The present system of small demonstration plots should be extended; there should be demonstration and illustration farms where new and improved methods of farming could be shown as part and parcel of the actual system of farming. The method is found useful in Canada and might well be tried here. A certain number of large farms should be established on purely business lines, but open to inspection, and giving publicity to their methods and accounts. In the opinion of the Development Commissioners the influence of these farms on agriculture (always supposing them to be financially successful) would be remarkable.

The Report is comprehensive and singularly opportune. Never before in our time has there been so grand an opportunity for laying the foundation of a noble rural civilisation. The touch of sadness brought into most homes by the war has done much to broaden our outlook and to level old prejudices. The problem must be approached in an enlightened but sympathetic spirit, looking only to the welfare of our children and our children's children; it can be solved, and the Report before us furnishes suggestive lines on which a solution can be found.

E. J. Russell.

PLATINUM.

A FEW months ago we noticed (vol. c., p. 486, February 21) the chapter on "Platinum in 1916" which Dr. G. F. Kunz contributed to the current volume of "The Mineral Industry," and now we have before us in pamphlet form the illustrated article on the same subject, though studied from a somewhat different point of view, which the same writer penned for the issue of the Bulletin of the Pan-American Union for November, 1917. On the last page—and, therefore, there being no cover, the back of the pamphlet—we are told that this union is an international organisation, which is housed at Washington in a beautiful building provided by the munificence of Mr. Andrew Carnegie, and is maintained by the republics, twenty-one in number, in both the Americas, the necessary funds being provided by the several countries in proportion to their population. The administration is in the hands of two executive officers—Director-General and Assistant-Director—who are appointed by, and are responsible to, the Board of Governors, which comprises the United States Secretary of State and the diplomatic representatives at Washington of the other American Governments, and they have the assistance of an ample staff of experts in various subjects, statisticians, translators, librarians, clerks, etc. The purpose of the union is to develop commerce and to promote friendly intercourse and good understanding between the several States—an admirable object that might with advantage be extended when opportunity occurs at the close of this tragic war.

The extraordinary rise that has during recent years taken place in the value of platinum is too well known to need emphasising, but it may not be without interest to note that in 1828 so little was it valued that the Russian Government commenced to coin of it 3-, 6-, and 12-rouble pieces. These coins would, according to present prices, be worth intrinsically about twenty times their nominal value. Although minted for seventeen years, they have become exceedingly rare, most of them having long since been melted down for their value as metal. Platinum appears to have been first introduced into Europe from South America about the middle of the eighteenth century under the name *Platina* (the diminutive of *plata*, the Spanish for "silver") *del Pinto*, and the first scientific description was published by an English physicist, Sir William Watson, who made the discovery that it was a new metal. Although first found in Colombia, then known as New Grenada, practically the whole of the world's supply has come from the Urals, the principal districts being Nizhne Tagilsk and Goroblagodatsk, where it is found in shallow drifts with pebbles of serpentine, which represent the original matrix. The working of the mines has been seriously interrupted by the war, and still more by the disintegration of society following on the revolution in Russia. Consequently the discovery of platinum in workable quantities elsewhere is much to be desired, so important and necessary is this metal for many industrial and scientific operations. Although so rare, it appears to be widely, if sparsely, distributed, occurrences having been reported in British Columbia, Alaska, Oregon, and California, in Borneo, New South Wales, and New Zealand, and even in County Wicklow.

Dr. Kunz describes some curious happenings at Quibdo, the capital of the Choco district in Colombia, in consequence of the great rise in the price of platinum. This metal was originally separated as waste in the refining of gold by the dry, or "blower," system, and thrown into the street. Later, when platinum became even more valuable than gold, the entire town of some 1500 inhabitants was turned into a mine, natives working the streets for the Government, and many property-owners mining under their houses. It is said that one man pulled his store down and recovered enough platinum to build a larger one, and yet net a balance of about 800*l*.

The total world's supply of platinum appears to be about 120 metric tons. Its principal purposes are in catalysing processes, for chemical, physical, and electrical apparatus, and for use in dentistry and jewelry.

THE BRITISH SCIENTIFIC PRODUCTS EXHIBITION.

IT has been our privilege during the four years of war to publish many articles upon scientific aspects of industrial developments in various directions. When supplies from enemy countries were cut off, it was necessary to establish here the manufacture of products and instruments for which we had previously been dependent almost entirely upon Germany. The sudden stoppage of the supply of optical glass required for the manufacture of sighting telescopes for guns, field-glasses, range-finders, and other service instruments was for a time the cause of national anxiety, but the situation was saved by the work of the Institute of Chemistry and Sir Herbert Jackson, which enabled manufacturers to produce the glasses required, not only for optical instruments,